

**ABSTRACT**

- A circuit board, which includes one or more sensors, is integrated in a fluid control device, such as a valve manifold and a base plate. The fluid control device
- 5 selectively directs a fluid used to control pneumatic or hydraulic equipment. The sensors are used to measure physical characteristics of the fluid, such as flow rate, pressure, and temperature. A flow sensor includes a paddle and a support member. The paddle is disposed at least partially in an orifice and is displaced in response to fluid flow. The support member positions the paddle in the orifice and includes a plurality of strain
- 10 gauges. The strain gauges are disposed on only one side of the support member and are mechanically stressed in response to the paddle being displaced by the fluid flow.

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